

R1.126 35.
1.

Sup 7

A method for inactivating a target cell in the presence of T cells comprising bringing the target cell and a T cell in contact with a superantigen in the presence of an immune modulator wherein at least one of the superantigen and immune modulator is conjugated to a targeting moiety.

R1.126 36.
2.

The method of claim ³⁵~~1~~, wherein the superantigen and immune modulator are both conjugated to the same targeting moiety, the conjugate being a triple conjugate.

R1.126 37.
3.

The method of claim ³⁵~~1~~, wherein the superantigen and targeting moiety are conjugated.

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R1.126 38.
4.

The method of claim ³⁷~~3~~, wherein the immune modulator is not conjugated to the targeting moiety.

R1.126 39.
5.

The method of claim ³⁵~~1~~, wherein the target cell is inactivated in vivo in an individual having a disease associated with the target cell.

R1.126 40.
6.

The method of claim ³⁹~~5~~, wherein the disease is cancer.

R1.126 41.
7.

The method of claim ³⁵~~1~~, wherein the targeting moiety is selected from the group consisting of an antibody, an antigen-binding fragment of an antibody, an Fab fragment of an antibody, an Fab₂ fragment of an antibody, or a single chain antibody.

R1.126 ^{42.}
~~8.~~

³⁵

The method of claim ~~1~~, wherein the superantigen is modified to have a decreased ability to bind to MHC class II antigen compared to the corresponding wild type superantigen.

R1.126

^{43.}
~~9.~~

³⁵

The method of claim ~~1~~, wherein the superantigen is modified to have decreased seroreactivity or immunogenicity in human sera compared to the corresponding wild type superantigen.

R1.126

^{44.}
~~10.~~

³⁵

The method of claim ~~1~~, wherein the superantigen is chimeric comprising sequences derived from two or more wild type superantigens.

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^{45.}
~~11.~~

³⁵

The method of claim ~~1~~, wherein the immune modulator is selected from the group consisting of cytokines, chemokines, and extracellular parts of lymphocyte bound receptors and ligands.

R1.126

^{46.}
~~12.~~

³⁵

The method of claim ~~1~~, wherein the immune modulator is IL-2.

R1.126

^{47.}
~~13.~~

³⁵

The method of claim ~~1~~, wherein the immune modulator is an extracellular part of a B7 molecule.

R1.126

^{48.}
~~14.~~

⁴⁷

The method of claim ~~13~~, wherein part of the B7 molecule is selected from the group consisting of CD80 and CD86.

R1.126 49.
15.

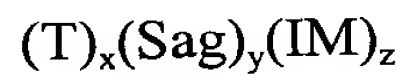
The method of claim ³⁵~~1~~, wherein the immune modulator has been modified to show a decreased affinity for a lymphocyte receptor, compared to the affinity of the corresponding native form.

R1.126 50.
16.

The method of claim ³⁵~~1~~, wherein the targeting moiety is an immune modulator.

R1.126 51.
17.

A superantigen conjugate comprising the formula:



wherein T is a targeting moiety, Sag is a superantigen, IM is an immune modulator that is not a superantigen;

y > 0;

and z > 0.

AI
CMT

R1.126 52.
18.

The superantigen conjugate of claim ⁵¹~~17~~, wherein x is between 0 and 10.

R1.126 53.
19.

The superantigen conjugate of claim ⁵¹~~17~~, wherein y is between 1 and 10.

R1.126 54.
20.

The superantigen conjugate of claim ⁵¹~~17~~, wherein z is between 1 and 10.

R1.126 55.
21.

The superantigen conjugate of claim ⁵¹~~17~~, wherein x, y and z are each 1-3.

R1.126 ⁵⁶_{22.}

The superantigen conjugate of claim ⁵¹~~17~~, wherein T comprises at least at T' and a T'', the superantigen is fused C-terminally to T' and the immune modulator is fused C-terminally to T''.

R1.126 ⁵⁷_{23.}

The superantigen conjugate of claim ⁵¹~~17~~, wherein the targeting moiety is selected from the group consisting of an antibody, an antigen-binding fragment of an antibody, an Fab fragment of an antibody, an Fab₂ fragment of an antibody, or a single chain antibody.

R1.126 ⁵⁸_{24.}

The superantigen conjugate of claim ⁵¹~~17~~, wherein the superantigen is modified to have a decreased ability to bind to MHC class II antigen compared to the corresponding wild type superantigen.

R1.126 ⁵⁹_{25.}

The superantigen conjugate of claim ⁵¹~~17~~, wherein the superantigen is modified to have decreased seroreactivity immunogenicity in human sera compared to the corresponding wild type superantigen.

R1.126 ⁶⁰_{26.}

The superantigen conjugate of claim ⁵¹~~17~~, wherein the superantigen is chimeric comprising sequences derived from two or more wild type superantigens.

R1.126 ⁶¹_{27.}

The superantigen conjugate of claim ⁵¹~~17~~, wherein the immune modulator is selected from the group consisting of cytokines, chemokines, and extracellular parts of lymphocyte bound receptors and ligands.

R1.126 62.
28.

The superantigen conjugate of claim ⁵¹~~17~~, wherein the immune modulator is IL-2.

R1.126 63.
29.

The superantigen conjugate of claim ⁵¹~~17~~, wherein the immune modulator is an extracellular part of a B7 molecule.

R1.126 64.
30.

The superantigen conjugate of claim ⁶²~~28~~, wherein part of the B7 molecule is selected from the group consisting of CD80 and CD86.

R1.126 65.
31.

The superantigen conjugate of claim ⁵¹~~17~~, wherein the immune modulator has been modified to show a decreased affinity for a lymphocyte receptor, compared to the affinity of the corresponding native form.

R1.126 66.
32.

The superantigen conjugate of claim ^{5b}~~22~~, wherein the superantigen is Staphylococcal enterotoxin A, T' is the C_H1 domain of C215 Fab, T'' is the light chain of C215 antibody, and the immune modulator is IL-2.

R1.126 67.
33.

The superantigen conjugate of claim ^{5b}~~22~~, wherein the superantigen is fused to T' via a flexible hydrophilic amino acid linker B of 3-11 amino acid residues, and the immune modulator is fused to T'' via a hydrophilic and neutral or positively charged amino acid linker Q of 10-20 amino acid residues.

R1.126 68.
34.

The superantigen conjugate of claim ⁶⁷~~33~~, wherein B is selected from the group consisting of Gly-Gly-Pro and Pro-Ala-Ser-Gly-Gly-Gly-Gly-Ala-Gly-Gly-Pro (SEQ ID NO: 19) and Q is selected from the group consisting of Gly-Pro-Arg-Gln-Ala-Asn-Glu-Leu-Pro-Gly-Ala-Pro-Ser-Gln-Glu-Glu-Arg (SEQ ID NO: 23), Gly-Pro-Arg-Gln-Ser-Asn-Glu-Thr-Pro-Gly-Ser-Pro-Ser-Gln-Glu-Glu-Arg (SEQ ID NO: 20), Gly-Pro-Arg-Gln-Ala-Lys-Thr-Leu-Pro-Gly-Ala-Pro-Ser-Gln-Thr-Thr-Arg (SEQ ID NO: 21) and Gly-Pro-Thr-Glu-Ala-Asp-Glu-Leu-Pro-Gly-Ala-Pro-Ser-Glu-Glu-Glu-Tr (SEQ ID NO: 22).

R1.126 69.
35.

The superantigen conjugate of claim ⁵¹~~17~~, wherein $x = 0$, $y = 1-3$ and $z = 1-3$.

R1.126 70.
36.

A DNA molecule encoding a superantigen and an immune modulator that is not a superantigen.

R1.126 71.
37.

The DNA molecule of claim ⁷⁰~~36~~, wherein the immune modulator is IL-2.

R1.126 72.
38.

The DNA molecule of claim ⁷⁰~~36~~, wherein the DNA molecule is in the form of a bicistronic construct in which:

a first cistron contains a sequence which encodes a superantigen; and

a second cistron contains a sequence which encodes an immune modulator.

R1.126 73.
39.

The DNA molecule of claim ⁷⁰~~36~~, wherein the superantigen encoded has been modified from wild type and has a modified ability to bind to MHC class II antigen compared to the corresponding wild type superantigen.

R1.126 74.
40.

The DNA molecule of claim ⁷⁰~~36~~, wherein the superantigen encoded has been modified from wild type and has a decreased seroreactivity immunogenicity in human sera compared to the corresponding wild type superantigen.

R1.126 75.
41.

The DNA molecule of claim ⁷⁰~~36~~, wherein the immune modulator encoded is an extracellular part of a B7 molecule and is selected from the group consisting of CD80 and CD86.

R1.126 76.
42.

A DNA molecule encoding a superantigen, an immune modulator that is not a superantigen, and a targeting moiety.

R1.126 77.
43.

A pharmaceutical composition comprising a superantigen, an immune modulator, and a targeting moiety, wherein at least one of the superantigen and immune modulator is conjugated to the targeting moiety.

R1.126 78.
44.

The pharmaceutical composition of claim ⁷⁷~~43~~, wherein the targeting moiety is selected from the group consisting of an antibody, an antigen-binding fragment of an antibody, an Fab fragment of an antibody, an Fab₂ fragment of an antibody, or a single chain antibody.

R1.126 79.
45.

The pharmaceutical composition of claim ⁷⁷~~43~~, wherein the superantigen is modified to have a decreased ability to bind to MHC class II antigen compared to the corresponding wild type superantigen.

The pharmaceutical composition of claim ~~43~~⁷⁷, wherein the superantigen is modified to have decreased seroreactivity immunogenicity in human sera compared to the corresponding wild type superantigen.

The pharmaceutical composition of claim 23, wherein the superantigen is chimeric comprising sequences derived from two or more wild type superantigens.

The pharmaceutical composition of claim ~~43~~⁷⁷, wherein the immune modulator is selected from the group consisting of cytokines, chemokines, and extracellular parts of lymphocyte bound receptors and ligands.

The pharmaceutical composition of claim ~~43~~⁷⁷, wherein the immune modulator is IL-2.

The pharmaceutical composition of claim ~~43~~⁷⁷, wherein the immune modulator is a part of the B7 molecule selected from the group consisting of CD80 and CD86.

Please substitute and examine the above-presented claims for those pending in the PCT application. Please begin numbering with the number 1. The above-presented claims represent rewritten claims of the PCT application in U.S. format. No new matter has been added.